

**REMARKS****I. General**

Claims 1-19 are pending in the application. All pending claims currently stand rejected under 35 U.S.C. § 102. Applicant hereby traverses the outstanding rejections and respectfully requests reconsideration and withdrawal in light of the remarks contained herein.

The Office Action does not provide any reasoning for the rejection of claim 13. Claim 13 stands rejected according to both the Office Action Summary page and page 2, paragraph 2 of the Office Action. However, the Detailed Action does not mention claim 13 to allege that the limitations are taught by any reference, or to furnish any other rationale. Accordingly, Applicant asserts that a proper rejection has not been made, and requests withdrawal of the rejection of claim 13.

**II. Rejections under 35 U.S.C. § 102**

Claims 1-19 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,506,473 to Aucouturier et al. (“Aucouturier”).

It is well settled that to anticipate a claim, the reference must teach every element of the claim. M.P.E.P. § 2131. Moreover, in order for a reference to be anticipatory under 35 U.S.C. § 102 with respect to a claim, “[t]he elements must be arranged as required by the claim.” See M.P.E.P. § 2131, citing *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Furthermore, in order for a reference to be anticipatory under 35 U.S.C. § 102 with respect to a claim, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” See M.P.E.P. § 2131, citing *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913 (Fed. Cir. 1989). Applicant respectfully asserts that the rejections do not satisfy these requirements.

**A. Independent Claims 1, 9 and 15**

Claim 1 recites “a cathode ... operable to generate an electron beam along the longitudinal axis [and] an energy input coupled to the cavity and operable to introduce electromagnetic radiation of the particular frequency into the cavity along the longitudinal axis of the cathode.” Aucouturier does not disclose at least this element of claim 1.

Aucouturier does not teach or suggest both generating an electron beam along the longitudinal axis of a cathode and also that electromagnetic radiation is coupled into a cavity along the same longitudinal axis. Rather, Aucouturier discloses that electromagnetic radiation is coupled into the cavities through inputs on one side of the cavity wall. Specifically, Aucouturier states that “excitation waves … are applied to the cavity 1 through excitation inputs 7 and 8,” and “[t]he exciting wave … is applied to the cavity resonator 10 through an excitation input 13.” Aucouturier, column 2, lines 43-44 and 63-64. Excitation inputs 7, 8 and 13 are clearly shown in Figure 1 of Aucouturier to be only on one side of the device – not along the longitudinal axis of cathode K or central conductor 2. See also Aucouturier, column 2, lines 11-12 and 22-23.

Therefore, since Aucouturier does not teach, suggest or disclose the above element of claim 1, Aucouturier does not anticipate claim 1. Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b) rejection of claim 1 and asserts that claim 1 is patentable for, at least, the reason stated above.

Claim 9 recites “a coaxial line … having a center conductor that extends into the cavity … operable to produce an electron beam … wherein the coaxial line is operable to introduce electromagnetic radiation … into the cavity along the longitudinal axis of the coaxial cable.” Aucouturier does not disclose at least this element of claim 9. Aucouturier does not teach or suggest that a coaxial line has a center conductor that extends into the cavity to produce an electron beam, wherein the coaxial line also introduces electromagnetic radiation into the cavity along the longitudinal axis of the coaxial cable. Rather, as shown above in the arguments for claim 1, Aucouturier discloses that electromagnetic radiation is coupled into the cavities through excitation inputs 7, 8 and 13 that lie entirely on one side of the device. Aucouturier, Figure 1; column 2, lines 43-44 and 63-64. These excitation inputs are not along the longitudinal axis of central conductor 2 or cathode K. See Aucouturier, column 2, lines 11-12 and 22-23 along with Figure 1.

Therefore, since Aucouturier does not teach, suggest or disclose the above element of claim 9, Aucouturier does not anticipate claim 9. Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b) rejection of claim 9 and asserts that claim 9 is patentable for, at least, the reason stated above.

Claim 15 recites “introducing electromagnetic radiation of the particular frequency into the cavity along the longitudinal axis of the cathode.” Aucouturier does not disclose at least this element of claim 15. Aucouturier does not teach or suggest introducing electromagnetic radiation into a cavity along the longitudinal axis of a cathode. Rather, as shown above in the arguments for claim 1, Aucouturier discloses that electromagnetic radiation is coupled into the cavities through excitation inputs 7, 8 and 13 that lie entirely on one side of the device. Aucouturier, Figure 1; column 2, lines 43-44 and 63-64. These excitation inputs are not along the longitudinal axis of central conductor 2 or cathode K. See Aucouturier, column 2, lines 11-12 and 22-23 along with Figure 1.

Therefore, since Aucouturier does not teach, suggest or disclose the above element of claim 15, Aucouturier does not anticipate claim 15. Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b) rejection of claim 15 and asserts that claim 15 is patentable for, at least, the reason stated above.

#### B. Dependent Claims

Claims 2-8, 10-14 and 16-19 each depend from one of independent claims 1, 9 and 15, and thus inherit all of the limitations of their respective independent claim. As shown above, Aucouturier does not anticipate any of independent claims 1, 9 and 15. Thus, claims 2-8, 10-14 and 16-19 are patentable for, at least, the reasons set forth above with respect to the independent claims. Moreover, these dependent claims set forth additional features and limitations not taught, suggested or disclosed by Aucouturier.

For example, claims 2 and 10 both recite “the cavity is axisymmetric around the longitudinal axis.” In contrast, Aucouturier shows a cavity that is highly asymmetric. Specifically, Figure 1 of Aucouturier shows “coaxial branch line 4” on one side of cavity 1, and excitation inputs 7, 8 and 13 on the opposite side of the device. Aucouturier, column 2, lines 23-25, 43-44 and 63-64.

Claims 3 and 11 both recite “the solenoid is operable to be positioned at any point along the length of the cavity.” Aucouturier, however, does not teach that a solenoid can be positioned at any point along the length of a cavity. Rather, Aucouturier teaches that “solenoid 12 surrounds the cavity resonator 10 over the length of the central conductor 11.”

Aucouturier, column 3, lines 6-7. Such a requirement as taught by Aucouturier does not allow for “at any point along the length of the cavity.”

Claim 6 recites “the cathode is operable to be selectively positioned in the cavity so that changing the position of the cathode in the cavity changes the particular frequency at which the cavity resonates.” Similarly, claim 12 recites “wherein the coaxial line is operable to be selectively positioned to change the particular frequency at which the cavity resonates.” Aucouturier teaches that cathode K is in a fixed position “at the end of central conductor 2”. Aucouturier, column 2, lines 22-23. Aucouturier does not teach that central conductor 2 is movable or adjustable. Additionally, Aucouturier teaches that the frequency is determined by “the length of the branch line” 4. Aucouturier, column 2, lines 25-31.

Claim 7 recites “the cathode is selectively positioned by a connector coupling the coaxial cable to the cavity.” Figure 1 of Aucouturier shows no such or equivalent connector.

Claims 8 and 14 both recite “the cavity comprises an endwall operable to be selectively deformed to change the particular frequency at which the cavity resonates.” As discussed above, for claim 6, the frequency is determined by branch line 4. Additionally, Aucouturier does not suggest that an endwall is deformable.

Claim 13 recites “the coaxial line further comprises a threaded connector coupling the coaxial line to the cavity; and the coaxial line is positioned by adjusting the threaded connector.” Aucouturier does not disclose either a threaded connector or positioning a coaxial line by any adjustments. Additionally, as discussed above, no reasoning is given in the Office Action for rejecting claim 13.

Claim 16 recites “selectively adjusting the particular frequency at which the cavity resonates by repositioning the cathode.” Aucouturier does not disclose such a limitation. See the argument for claims 6 and 12 above. Further, claim 16 recites “introducing electromagnetic radiation of the new resonant frequency into the cavity along the longitudinal axis of the cathode.” As shown above in the arguments for claim 1, in Aucouturier, electromagnetic radiation is coupled into the cavities through excitation inputs 7, 8 and 13 that are not on the longitudinal axis of the cathode.

Claim 18 recites “adjusting the particular frequency at which the cavity resonates by selectively deforming an endwall of the cavity.” Aucouturier does not teach this. See the arguments above for claims 8 and 14. Claim 18 also recites “introducing electromagnetic radiation of the new resonant frequency into the cavity along the longitudinal axis of the cathode.” Aucouturier does not teach this, either. See the arguments for claim 1.

Claim 19 recites “the electromagnetic radiation is introduced into the cavity by a coaxial line coupled to the cavity; and the cathode comprises an extension of a center conductor of the coaxial cable.” As shown above for claim 1, in Aucouturier, electromagnetic radiation is coupled into the cavities through excitation inputs 7, 8 and 13. Even if the excitation inputs were coupled to coaxial cables, the cathode is not connected to the excitation inputs. See Aucouturier, Figure 1. Thus, in Aucouturier, the cathode cannot comprise an extension of the center conductor that introduces electromagnetic radiation into a cavity.

### III. Summary

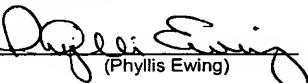
In view of the above, Applicant believes the pending application is in condition for immediate allowance. Applicant therefore requests that the Examiner pass all pending claims to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 63951/P013US/10211125 from which the undersigned is authorized to draw.

Dated: August 29, 2005

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EV629198399US, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: August 29, 2005

Signature:   
(Phyllis Ewing)

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